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EXAMINER	
NATNAEL, PAULOS M	

ART UNIT	PAPER NUMBER
2614	2

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/909,760	Applicant(s) HARRIS ET AL.	
	Examiner Paulos M. Natnael	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,18-20 and 22-24* is/are rejected.

7)☒ Claim(s) *16,17 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because of several typo errors in, for example, Figs. 9 and 10. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims **1,15-17, and 20-22** are objected to because of the following informalities: the abbreviation OFDM is undefined. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **1-15,18-20,22-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kaneko**, U.S. Pat. No. 6,009,073 in view of **Golding** et al., U.S. Pat. No. 3,795,763.

Considering claim **1**,

b) modulating the binary bit stream according to a modified OFDM technique, the modulating comprising: generating in-phase and quadrature symbol frames from the binary bit stream, is met by the Arithmetic unit 13, fig.7; Digital Quadrature modulating unit, 74, fig. 7;

c) combining the in-phase and quadrature symbol frames streams according to OFDM modulation techniques, is met by Digital Quadrature modulating unit, 74, fig. 7, which outputs a combined OFDM signal.

d) converting the combined symbol frames into an analog signal, is met by D/A converter 75, fig.7;

Except for;

a) obtaining sync pulse information from the composite video signal;

e) combining the analog signal with the composite video signal according to the obtained sync pulse information;

Regarding a), Kaneko discloses synchronizing the digital signal with the sync signal from the clock frequency divider22, fig. 7. Kaneko does not specifically disclose obtaining sync pulse information form the composite signal. However, obtaining sync pulse information from the composite video signal is well known in the art, and it would have been obvious to those skilled in the art to modify the system of Kaneko to provide sync signals from the input video signal

in order to better synchronize the input signal with the data input from other sources, such as audio data.

Regarding e), Kaneko does not specifically disclose combining the analog signal output from the D/A converter with the composite video signal. However,

Golding discloses a digital television transmission system for transmitting television signals at a reduced bit rate and bandwidth. Reduction of bit rate is accomplished by eliminating half the chroma data and all the sync pulses from the transmitted signal. Periodic sync words are transmitted to allow reconstruction at the receiver side. Golding further discloses combining the Y component of the composite signal with the modulated I & Q signals as shown in fig. 1 according to the sync signal generated from the sync word generator 86. Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Kaneko by providing the disclosure of Golding where the modulated analog signal is combined with the Y component of the composite signal so that reduce transmission bit rate and bandwidth is obtained.

Considering claim **2**, the method of Claim 1, wherein combining comprises: translating the analog signal to be centered at an intermediate frequency above the baseband of the composite video signal, amplifying the translated analog signal, is met by digital quadrature modulating unit 74, fig.7;

Considering claim **3,** the method of Claim 2, wherein the intermediate frequency is at least 2 MHz;

Kaneko does not specifically disclose the IF frequency. However, Examiner takes official notice in that it is notoriously well known in the Television are to choose an Intermediate frequency in the range of 2 MHz to 4 MHz, and therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Golding and provide a range of IF signal accordingly.

Considering claim **4**, the method of Claim 2, wherein the intermediate frequency is less than 3 MHz.

See rejection of claim 4;

Considering claim **5**, the method of Claim 1, wherein modulating further comprises: encoding the binary bit stream with forward error correction code; and precoding the generated in-phase and quadrature symbol streams according to comb filtering effects, is implied because on the receiving side Kaneko discloses FFT and correction circuits 43 &44, Fig.5 (see also figs. 8 and 10)

Considering claim **6**, the method of Claim 5, wherein precoding comprises: the assembly of in-phase and quadrature symbol frames according to OFDM modulation techniques, is met by the digital quadrature modulating unit which outputs an OFDM signal, Fig.7.

Considering claim **7**, the method of Claim 1, wherein the composite video signal is a NTSC video signal, is met by input digital information (picture signal), fig.7;

Considering claim **8**, an apparatus for modulating a binary bit stream in a composite video signal, the composite video signal includes luminance, chrominance and audio components, the apparatus comprising: a sync pulse stripper configured to obtain sync; pulse information from the composite video signal; a modulator configured to modulate the binary bit stream according to quadrature amplitude modulation, the modulator comprising: a symbol mapper configured to generate in-phase and quadrature symbol streams; a symbol stream combiner configure to combine the in-phase and quadrature symbol streams according to quadrature amplitude modulation techniques; a digital to analog converter configured to convert the combined symbol streams into an analog signal; and a combiner configured to combine the analog signal with the composite video signal according to the obtained sync pulse information.

Regarding claim 8, see rejection of claim 1;

Considering claim **9**, the apparatus of Claim 8, wherein the combiner comprises: a translator configured to translate the analog signal to be centered at an intermediate frequency above the baseband of the composite video signal; and an amplifier configured to amplifying the translated analog signal, is met by digital quadrature modulating unit 74, fig.7;

Considering claim **10**, the apparatus of Claim 9, wherein the intermediate frequency is at least 2 MHz.

See rejection of claim 2;

Considering claim **11**, the apparatus of Claim 9, wherein the intermediate frequency is less than 3 MHz.

See rejection of claim 2;

Considering claim **12**, the apparatus of Claim 8, wherein modulator further comprises: a precoder configured to precode the generated in-phase and quadrature symbol streams according to comb filtering effects, is met by the symbol number counting circuit 14, fig.7;

Considering claim **13**, the apparatus of Claim 12, wherein the precoder comprises: a filter configured to filter the generated in-phase and quadrature symbol streams according to Nyquist square root filtering techniques, is met by the Low pass filter 18, fig.7;

Considering claim **14**, the apparatus of Claim 8, wherein the composite video signal is a NTSC video signal, is met by input digital information (picture signal), fig.7;

Considering claim **15**, a method for demodulating a binary bit stream modulated in a composite video signal as a gated and windowed OFDM offset carrier modulated signal, the composite video signal includes luminance, chrominance and audio components, the method comprising: converting the composite video signal modulated with the carrier centered OFDM modulated signal into a digital signal; splitting the digital signal into synch pulses and a quadrature amplitude modulated data stream; separating the offset OFDM modulated data stream into in-phase and quadrature symbol frames streams according to the synch pulses; combining the in-phase and quadrature demodulated symbol frames into a single binary data stream.

See rejection of claim 1.

Considering claim **18**, the method of Claim 15, further comprising: decoding the single binary data stream according to forward error correction coding included in the binary data stream, is implied because, on the receiving side of the system, Kaneko discloses FFT and correction circuits 43 & 44, Fig.5 (see also figs. 8 and 10)

Considering claim **19**, the method of Claim 15, wherein the composite video signal is a NTSC video signal, is met by input digital information (picture signal), fig.7;

Considering claim **20**, a receiver for demodulating a binary bit stream modulated in a composite video signal as an offset OFDM modulated signal, the composite video signal includes luminance, chrominance and audio components, the receiver comprising: an analog to digital converter configured to convert the composite video signal modulated with the offset OFDM modulated signal into a digital signal; a splitter configured to split the digital signal into synch pulses and an I-Q OFDM modulated data stream; a separator configured to separate the offset OFDM modulated data frame into in-phase and quadrature symbol frames according to the synch pulses; and a combiner configured to combine the in-phase and quadrature data frames into a single binary data stream.

See rejection of claim 1;

Considering claim **22**, the receiver of Claim 20, wherein the separator comprises: a translator configured to frequency translate the I-Q OFDM modulated data frame to the baseband of the composite video signal, is met by digital quadrature modulating unit 74, fig.7;

Considering claim **23**, the receiver of Claim 20, further comprising:
a decoder configured to decode the single binary data stream according to forward error correction coding included in the binary data stream, is implied because, on the receiver side, Kaneko discloses FFT and correction circuits 43 & 44, Fig.5 (see also figs. 8 and 10)

Considering claim **24**, the receiver of Claim 20, wherein the composite video signal is a NTSC video signal, is met by input digital information (picture signal), fig.7;

Allowable Subject Matter

5. Claims **16, 17 and 21** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose, wherein splitting comprises, suppressing the composite video signal for attaining the offset OFDM modulated data stream; suppressing the offset OFDM modulated data stream for attaining the composite video signal; and extracting the synch pulses from the attained composite video signal, as in claim **16**;

wherein the splitter comprises, a first signal suppressor configured to suppress the composite video signal for attaining the I-Q OFDM modulated data stream; a second signal suppressor configured to suppress the I-Q OFDM modulated data stream for attaining the composite video signal; and an extractor configured to extract the synch pulses from the attained composite video signal, as in claim **21**;

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Martinez, U.S. Pat. No. 5,321,514 discloses an interactive television and data transmission system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMN
May 13, 2004

PAULOS M. NATNAEL
PATENT EXAMINER